

Tropical Cyclone Report
Tropical Storm Maka
(CP012009)
11-18 August 2009

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15 November 2009

a. Overview

Tropical Depression One-C (TD-1C) developed near 13.5N 170.0W, or about 790 nm southwest of Lihue, Hawaii at 0000 UTC 11 August. The west-northwestward moving disturbance from which TD-1C formed was first identified at 1800 UTC 08 August near 10.0N 159.0W, or about 725 nm south of Lihue, Hawaii.

TD-1C intensified to a tropical storm at 1200 UTC 11 August, and the Central Pacific Hurricane Center (CPHC) named the system Maka (“Eye” in English). Maka stayed on a west-northwest course attaining peak intensity with maximum sustained winds of 45 knots at 1200 UTC 11 August. Maka weakened to a tropical depression at 0000 UTC 12 August, and remained a tropical depression until the CPHC stopped issuing advisories at 1800 UTC 12 August.

The resultant remnant low moved west, crossing 180W near 14.3N shortly after 0600 UTC 13 August. The low turned to the northwest and north over the next several days, reaching 15.3N 173.1E at 1800 UTC 15 August. The Joint Typhoon Warning Center (JTWC) upgraded Maka to a tropical storm at that time, and proceeded to downgrade the system to a tropical depression at 0600 UTC 17 August. The last advisory issued by JTWC on Maka was at 0600 UTC 18 August.

b. Synoptic History

Sea surface temperatures were around 28 Deg C and vertical wind shear was insignificant near Maka until 12 August. At low levels, a 1026 hPa subtropical high was centered near 40N 171W and an associated subtropical ridge extended from the high north of Maka to near 27N 163E. This placed Maka well within a deep layered easterly flow. With the friendly environment, Maka intensified whilst staying on a west-northwest course east of 180W.

On 12 August, Maka encountered an area of southwesterly shear located south of a middle- and upper-level low pressure system centered near 15.1N 172.7W. The shear over a 12 hour period weakened and disorganized Maka resulting in the downgrade to a tropical depression and the cessation of advisories by CPHC. Once west of 180W, a mid-latitude trough eroded the west end of the subtropical ridge northwest of Maka. The

cyclone subsequently turned to the northwest and north toward the weakness in the pressure field.

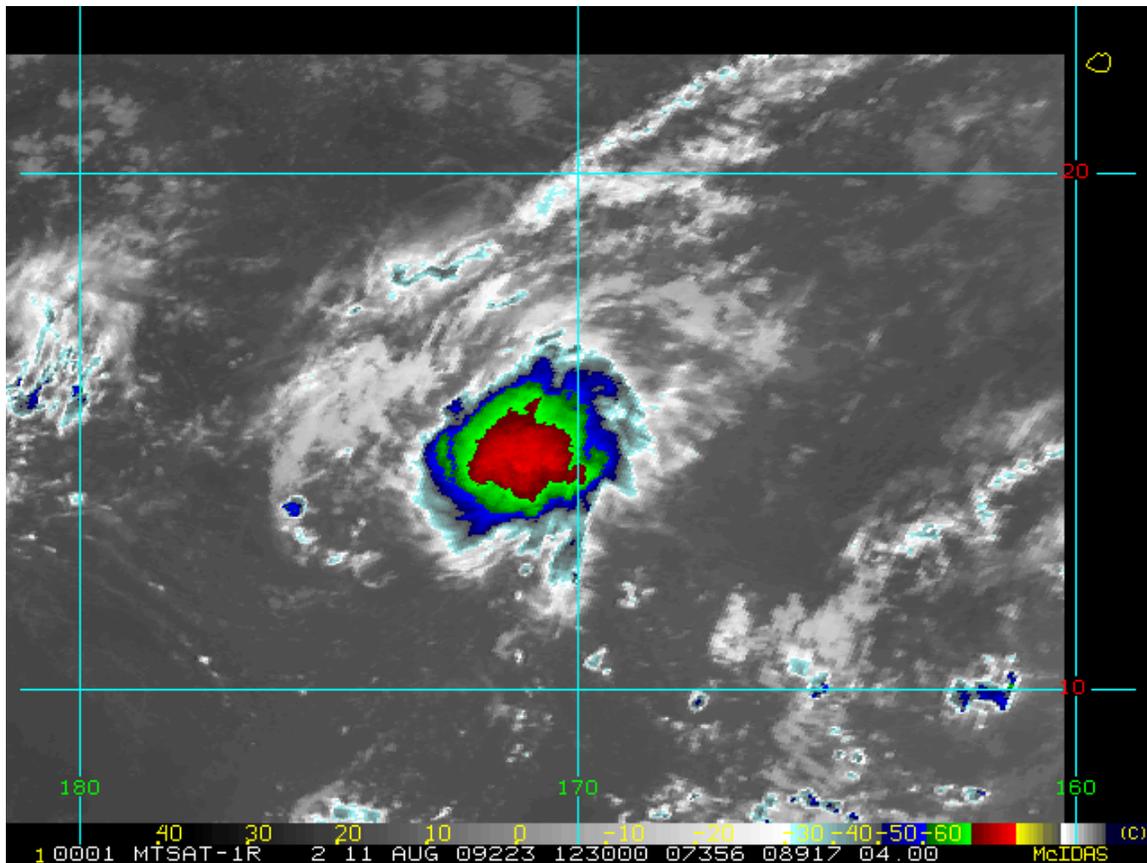


Figure 1. This infrared satellite image of Maka was taken when the tropical cyclone was at its peak intensity. For reference, the island of Kauai is located in the upper right hand corner of the image.

c. Casualty and Damage Statistics

Maka was never over or near land. Therefore, no tropical cyclone watches or warnings were issued. There were no weather-related casualties or damage reported.

d. Forecast Critique

The genesis of Maka was not well anticipated. The precursor disturbance that developed into Maka was first mentioned in CPHC's Tropical Weather Outlook (TWO) issued at 1800 UTC 08 August. This TWO, as well as succeeding TWOs through 1800 UTC 10 August, only stated that "slow development is possible over the next two days."

GOES and microwave satellite imagery showed that throughout its life span Maka regularly oscillated between being organized and disorganized. Subsequently, the fix data provided by various agencies often had a large spread. This made it difficult to determine an initial position and intensity. In fact, on at least two occasions, the CPHC forecaster was unsure if Maka was a closed circulation at lower levels or a sharp surface trough. Confidence in the official position and intensity as well as the forecast was therefore quite low.

Table 1. Best Track Data for Tropical Storm Maka 11-18 August 2009

Date/Time (UTC)	Latitude (°N)	Longitude (°W)	Pressure (mb)	Wind Speed (kt)	Stage/Notes
08/1800	10.0	159.0	1009	25	Disturbance
09/0000	10.7	160.2	1012	15	"
09/0600	11.2	161.4	1011	20	"
09/1200	11.7	162.5	1011	20	"
09/1800	12.0	163.7	1011	20	"
10/0000	12.3	165.0	1011	20	"
10/0600	12.5	166.3	1011	20	"
10/1200	12.8	167.6	1010	20	"
10/1800	13.1	168.8	1009	25	"
11/0000	13.4	169.7	1009	30	Tropical Depression
11/0600	13.7	170.7	1009	30	"
11/1200	13.9	171.3	1008	35	Tropical Storm
11/1800	14.1	171.8	1008	35	"
12/0000	14.3	172.4	1008	30	Tropical Depression
12/0600	14.4	173.8	1008	30	"
12/1200	14.2	175.3	1008	30	"
12/1800	14.3	176.8	1009	25	"
13/0000	14.4	178.3	1011	25	Disturbance
13/0600	14.3	179.7	1011	25	"
14/0000	13.8	178.6E	1010	20	"
14/0600	13.1	177.3E	1009	20	"
14/1200	13.3	175.9E	1007	20	"
14/1800	13.5	174.6E	1003	25	Tropical Depression
15/0000	13.7	174.0E	1003	25	"
15/0600	14.4	173.2E	1002	30	"
15/1200	14.9	173.1E	1001	30	"
15/1800	15.3	173.1E	997	35	Tropical Storm

16/0000	15.8	173.2E	992	45	"
16/0600	16.0	173.2E	992	45	"
16/1200	16.1	173.2E	992	40	"
16/1800	16.3	173.1E	994	35	"
17/0000	16.3	172.8E	995	35	"
17/0600	16.2	172.6E	998	30	Tropical Depression
17/1200	16.1	172.3E	1000	30	"
17/1800	16.1	172.0E	1000	30	"
18/0000	16.0	171.6E	1000	25	"
18/0600	15.9	171.1E	1006	25	"

Table 2. Track Verification Table entries are track forecast errors, measured in nautical miles. Values in parentheses indicate the number of forecasts. Values in bold represent guidance forecast errors equal to or less than the office CPHC forecast.

Forecast	12-hr	24-hr	36-hr	48-hr	72-hr	96-hr	120-hr
CPHC	70 (6)	103 (5)	125 (4)	170 (2)	373 (4)	376 (7)	439 (7)
CLP5	81 (6)	132 (6)	132 (4)	207 (3)	282 (5)	173 (8)	253 (8)
BAMD	53 (6)	103 (6)	133 (4)	259 (3)	406 (5)	438 (8)	530 (8)
BAMM	56 (6)	90 (6)	118 (4)	205 (3)	330 (5)	346 (8)	391 (8)
BAMS	64 (6)	99 (6)	82 (4)	154 (3)	226 (5)	216 (8)	255 (8)
GFDL	64 (6)	86 (5)	84 (4)	189 (2)	393 (4)	488 (7)	567 (7)
AVNO	76 (19)	117 (16)	171 (14)	266 (10)	386 (8)	423 (8)	482 (7)
NOGAPS	70 (17)	119 (14)	178 (11)	237 (8)	369 (6)	418 (6)	606 (6)
GUNA	77 (3)	149 (3)	160 (2)	263 (2)	375 (5)	391 (5)	504 (5)

Additional information on Maka is located at [the CPHC website](#).